Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1. **(Previously Presented)** A method for electrochemically depositing a polysaccharide having a selected physical state, onto a substrate surface, wherein said method comprises:

providing a substrate comprising said ~~a~~ substrate surface, said substrate surface comprising an electrically conductive support;

contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and

electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form a polysaccharide mass having a selected physical state deposited onto said substrate surface.

Claim 2. **(Previously Presented)** The method of claim 1, wherein the selected physical state comprises that of a hydrogel.

Claim 3. **(Previously Presented)** The method of claim 2, wherein said electrochemically depositing is conducted at a current density of about 20 A/m^2 to about 100 A/m^2.

Claim 4. **(Previously Presented)** The method of claim 3, wherein said electrochemically depositing is conducted at a pH of about 5 to about 5.5.

Claim 5. **(Previously Presented)** The method of claim 4,wherein said electrochemically depositing is conducted for a deposition time of about 2 minutes to about 30 minutes.

Claim 6. **(Previously Presented)** The method of claim 1,wherein said controlling of deposition conditions comprises varying the deposition conditions during said electrochemical deposition to provide the polysaccharide mass with a hydrogel portion and a solid compact film portion.

Claim 7. **(Previously Presented)** The method of claim 6, wherein the hydrogel portion is layered on top of the solid compact film portion.

Claim 8. **(Previously Presented)** The method of claim 1,wherein the selectively insolubilizable polysaccharide comprises an ionizable group that is ionized to provide a positive charge.

Claim 9. **(Previously Presented)** The method of claim 8, wherein the ionizable group comprises an alkyl amine group, a primary amine group, a secondary amine group, a tertiary amine group, a guanidinium group, an imidazole group, an indole group, a purine group, a pyrimidine group, or a pyrrole group.

Claim 10. **(Previously Presented)** The method of claim 9, wherein the ionizable group comprises a primary amine group.

Claim 11. **(Previously Presented)** The method of claim 10, wherein the selectively insolubilizable polysaccharide comprises chitosan.

Claim 12. **(Previously Presented)** The method of claim 11, further comprising treating the polysaccharide mass with a sufficiently basic solution to stabilize the polysaccharide mass.

Claim 13. **(Previously Presented)** The method of claim 1, wherein the selectively insolubilizable polysaccharide comprises an ionizable group that is ionized to provide a negative charge.

Claim 14. **(Previously Presented)** The method of claim 13, wherein the ionizable group comprises an alkoxide group, a carboxyl group, a hydroxy acid group, a phenolic group, a phosphate group, or a sulfhydryl group.

Claim 15. **(Previously Presented)** The method of claim 14, wherein the ionizable group comprises a carboxyl group.

Claim 16. **(Previously Presented)** The method of claim 13, further comprising treating the polysaccharide mass with a sufficiently acidic solution to stabilize the polysaccharide mass.

Claim 17. **(Previously Presented)** The method of claim 1, wherein the substrate comprises a non-conducting, inorganic material.

Claim 18. **(Previously Presented)** The method of claim 17, wherein the substrate comprises silicon.

Claim 19. **(Previously Presented)** The method of claim 18, wherein the electrically conductive support comprises gold.

Claim 20. **(Previously Presented)** The method of claim 1, wherein:

the electrically conductive support is patterned and the substrate surface further comprises an electrically non-conductive portion; and

said depositing comprises selectively depositing the selectively insolubilizable polysaccharide on the patterned electrically conductive support.

Claim 21. **(Previously Presented)** The method of claim 20, wherein the patterned electrically conductive support comprises a plurality of parallel lines spaced apart from one another.

Claim 22. **(Previously Presented)** The method of claim 1, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.

Claim 23. **(Previously Presented)** The method of claim 1, wherein the selectively insolubilizable polysaccharide comprises chitosan, and wherein the polysaccharide mass comprises a hydrogel.

Claim 24. **(Withdrawn)** A method for conjugating a component to a polysaccharide mass, said component being a biomolecular species, a cellular species or a nucleic acid molecule, wherein said method comprises:

providing a polysaccharide mass having a selected physical state and derived from a selectively insolubilizable polysaccharide deposited on an electrically conductive support; and

coupling said component to the polysaccharide mass.

Claim 25. **(Withdrawn)** The method of claim 24, further comprising:

providing a substrate comprising a substrate surface, the substrate surface

comprising an electrically conductive support;

contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and

electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form the polysaccharide mass having a selected physical state.

Claim 26. **(Withdrawn)** The method of claim 25, wherein the selectively insolubilizable polysaccharide comprises chitosan, and wherein the polysaccharide mass comprises a hydrogel.

Claim 27. **(Withdrawn)** The method of claim 26, wherein said electrochemically depositing is conducted at a current density of about 20 A/m^2 to about 100 A/m^2.

Claim 28. **(Withdrawn)** The method of claim 25, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.

Claim 29. **(Withdrawn)** The method of claim 25, wherein said coupling of said component to the selectively insolubilizable polysaccharide is performed prior to said electrochemically depositing step.

Claim 30. **(Withdrawn)** The method of claim 25, wherein said coupling of said component to the polysaccharide mass is performed after said electrochemically depositing step.

Claim 31. **(Withdrawn)** A method according to claim 25, further comprising modifying the selectively insolubilizab1e polysaccharide to improve conjugatability with a reactive group of said component.

Claim 32. **(Withdrawn)** A method according to claim 24, wherein said coupling comprises covalent bonding.

Claim 33. **(Withdrawn)** A method according to claim 24, wherein said molecule or said cellular species comprises one, two, three or more enzyme.

Claim 34. **(Withdrawn)** A method according to claim 24, wherein said component comprises an antibody ~~species~~.

Claim 35. **(Withdrawn)** A method according to claim 24, wherein said component comprises a receptor molecule.

Claim 36. **(Withdrawn)** A method according to claim 24, wherein said component comprises a nucleic acid molecule.

Claim 37. **(Withdrawn)** A method according to claim 24, wherein said component is modified to include a tyrosine residue.

Claim 38. **(Withdrawn)** A method according to claim 37, wherein said coupling of the molecule or said cellular species to the selectively insolubilizable polysaccharide comprises a tyrosinase-catalyzed oxidation reaction.

Claim 39. **(Withdrawn)** A material comprising a selectively insolubilizable polysaccharide hydrogel deposited on an electrically conductive support.

Claim 40. **(Withdrawn)** The material of claim 39, wherein the hydrogel is deposited in a spatially selective manner.

Claim 41. **(Withdrawn)** A device comprising a material of claim 39.

Claim 42. **(Withdrawn)** A device according to claim 41, wherein the device comprises a microelectromechanical system.

Claim 43. **(Withdrawn)** A device according to claim 42, wherein the device comprises microchannels fabricated in a substrate such that electrodes are located within the microchannels to enable selective electrodeposition using fluidic flow in the microchannels.